





Armed Forces College of Medicine

AFCM

**Endocrine & Urogenital
Module**



Contraceptives

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INTENDED LEARNING OBJECTIVES (ILO)

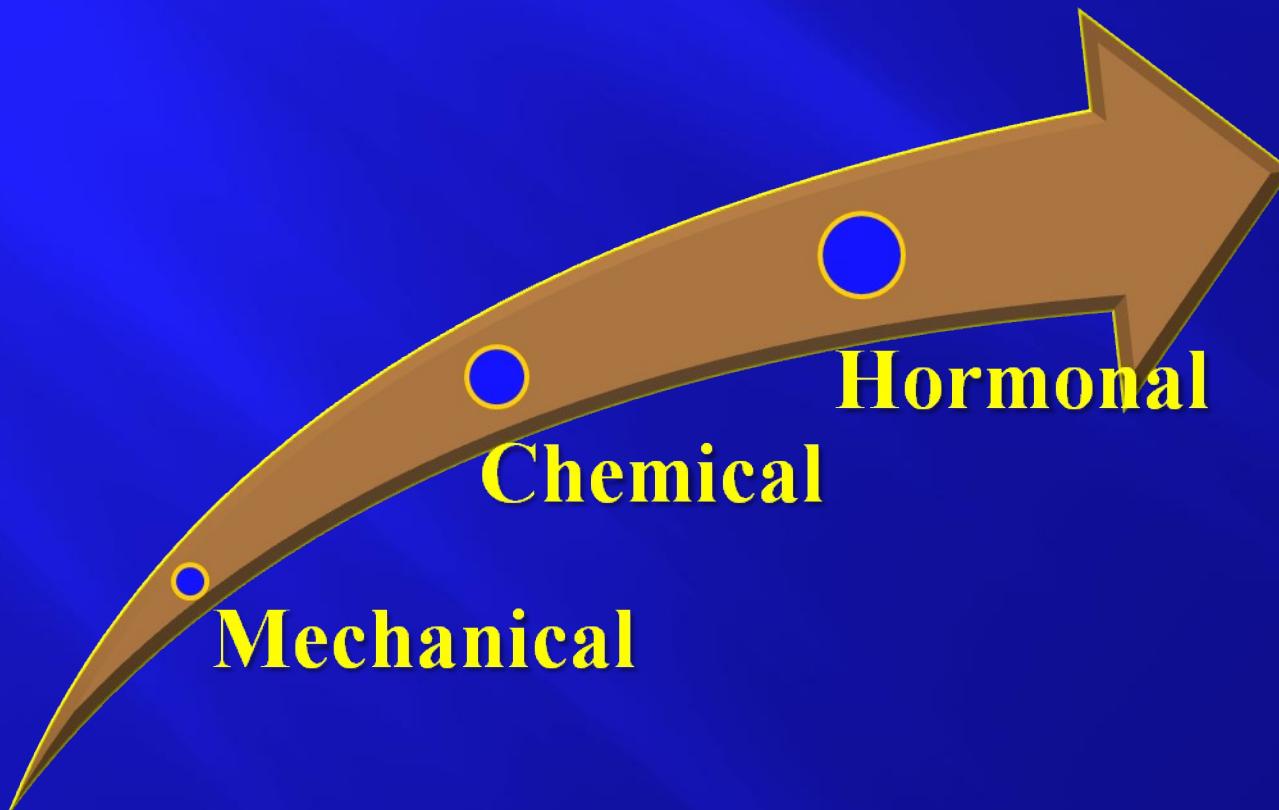


- 1.
2. Describe the mechanism of action and adverse effects of various hormones.
- 3.

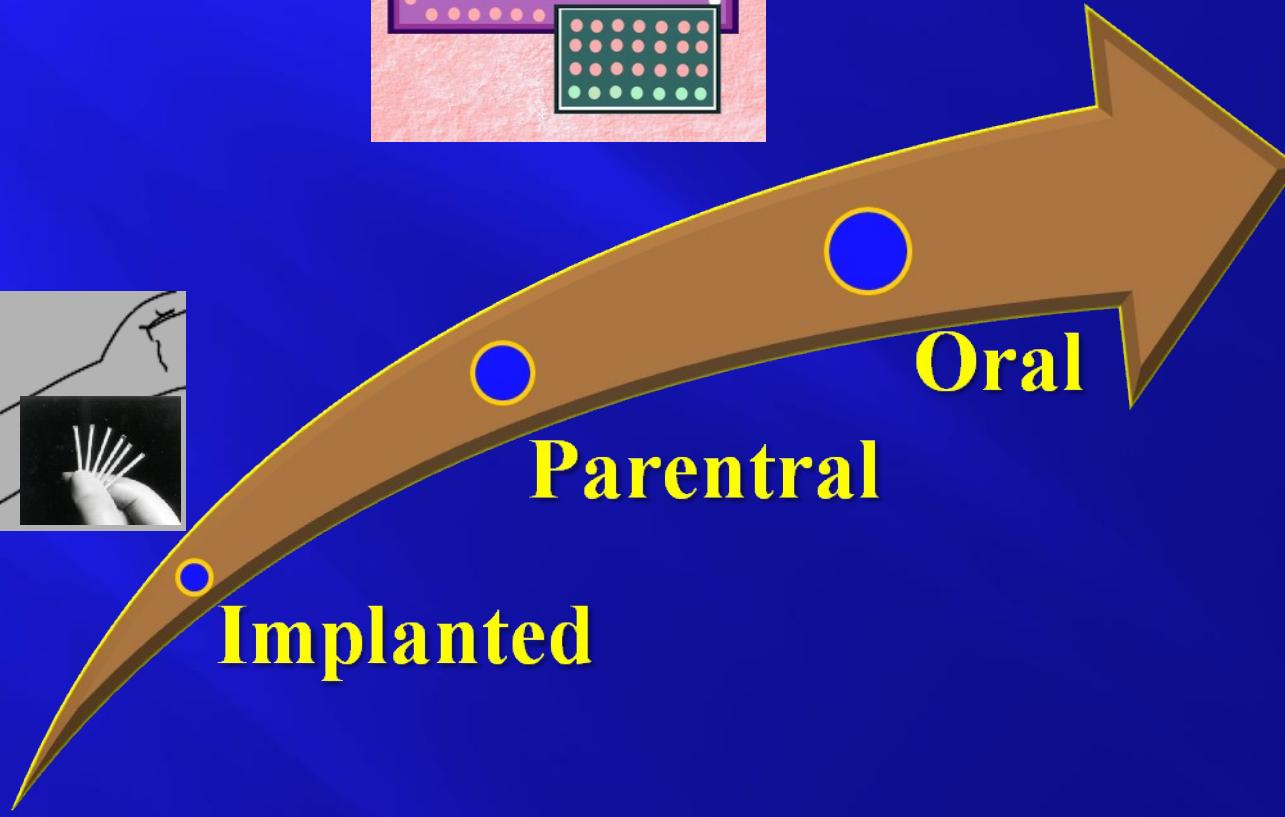
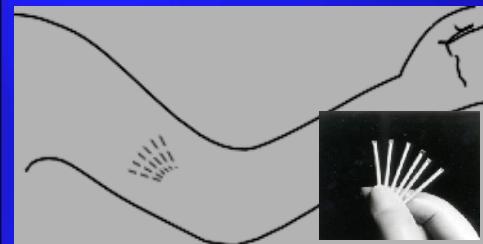
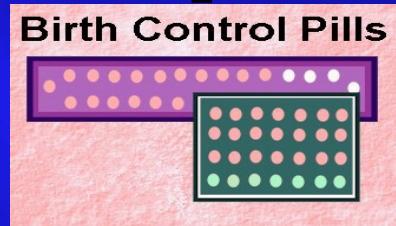
Contraceptives

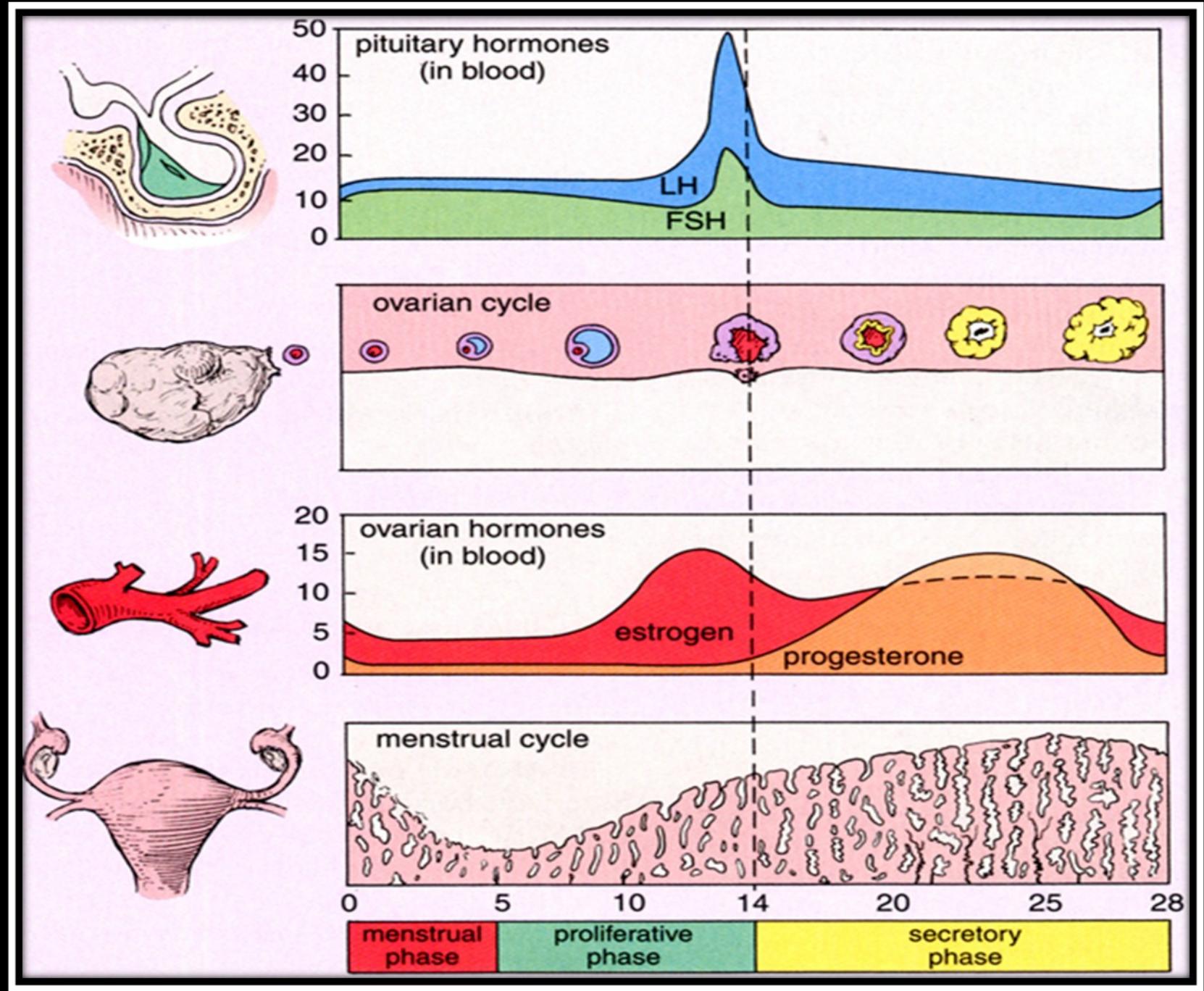
Contraception

It may be



Hormonal Contraception





Oral Contraception

1-Combined method: estrogen + progestins



:Tablets given orally for 21 days
.starting from 5th day of cycle

A- Monophasic combination tablets

ethinyl estradiol 0.03 mg with

B- Biphasic combination tablets

➤From day 1-10

(ethinyl estradiol 0.03 mg with
norethindrone 0.5mg)

➤From day 11-21

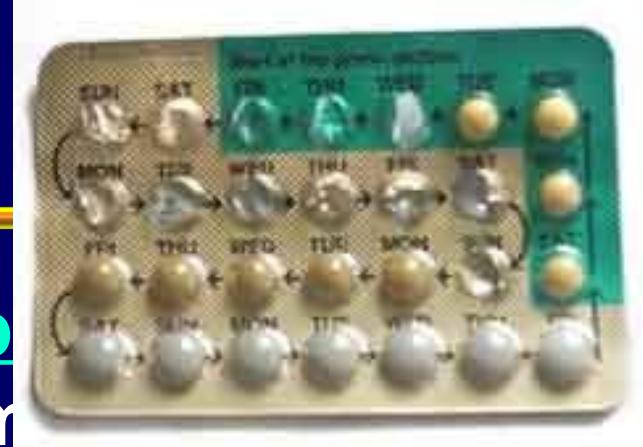
(ethinyl estradiol 0.03 mg with
norethindrone 1 mg)

1-Combined method

C-Triphasic combination tab

- Mimic the natural female cycle, most contain a **constant dose of estrogen with increasing doses of progestin given over three successive 7-day periods**

- **for a total regimen of 28 days.**
- **Active pills are taken for 21 to 24 days**
- **followed by 4 to 7 days of placebo**
- **Withdrawal bleeding occurs during the hormone-free (placebo) interval**



Progestin -2 only



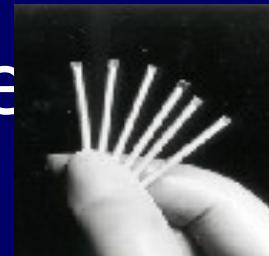
Containing progestin

:Oral only

- Norethindrone (***Mini-pill***) 0.35mg oral continuously

Injectable :

- Medroxyprogesterone 150mg I.M. every months



:Implants

- Norgestrel S.C. Implantation lasts up to 5 years

Post-coital (emergency)-3 contraceptive

**Following coitus (morning after
contraception)**



■ **Estrogen alone:**
:ethinyl estradiol

mg twice daily for 5 days within 72 2.5
hrs(3days)of coitus

OR :

■ **Estrogen combined with progestins**
ethinyl estradiol 0.05mg + **norgestrel** 0.5mg
tablets immediately after coitus and 2 2

Mifepristone 200 mg once + **Misoprostol**
400 µg once
(Progesterone antagonist) (PE)

Mechanism of action

a) Estrogens

- . ☐ Inhibit FSH → ↓ ovulation
- ☐ Large dose of estrogen (postcoital pills)
 - Increase motility of oviduct & endometrial changes →
 - ↓ fertilization & implantation → Withdrawal bleeding

b) Progestin → expel fertilized ovum

- Inhibit LH → ↓ ovulation
- ↑ viscosity of cervical mucus so impair penetration of sperms

Mechanism of action

■ Small dose of progestins

(minipill)

- Does not inhibit ovulation
- Does not inhibit the cycle
- Does not inhibit lactation
- Mechanism of contraception→
thick cervical mucus & endometrial changes

Adverse effects

The most common adverse effects:

- 1) Headache, and nausea
- 2) Fluid retention → Weight gain & Increased blood pressure may also occur
- 3) Breast fullness & mastalgia.
- 4) Progestins may be associated with:
depression, changes in libido, hirsutism, and acne.
Break-through bleeding (common with progestogens alone
or low dose combination method)

Severe adverse effects: Although rare

- 1) Thromboembolism, myocardial infarction, and stroke

(most common among women who are over age 35 and

Contraindication :

- 1)the presence of cerebrovascular and thromboembolic disease
 - 2)patients over the age of 35 who are heavy smokers
(Combination oral contraceptives should not be used)
 - 3)estrogen-dependent neoplasms.
 - 4) liver disease.
 - 5) pregnancy.
-
- 6) Drugs that induce the CYP3A4 isoenzyme (for example, rifampin) which significantly reduce the efficacy of oral contraceptives.
 - 7) Antibiotics that alter the normal gastrointestinal flora may reduce enterohepatic recycling of the estrogen component of oral contraceptives, thereby diminishing their effectiveness.

Other methods for contraception

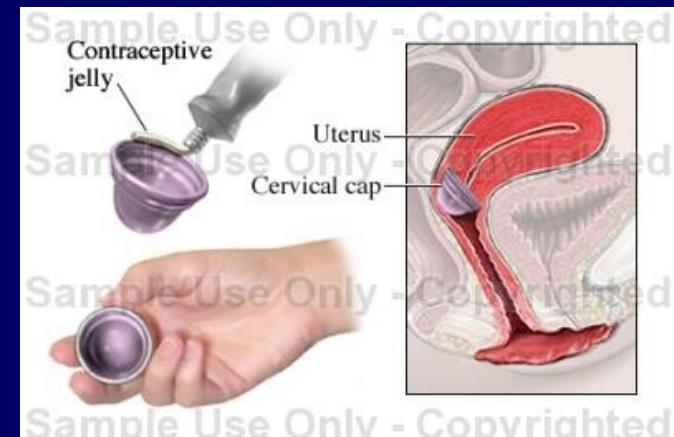
Chemical contraceptives(local):

by spermicidal drugs in vagina.

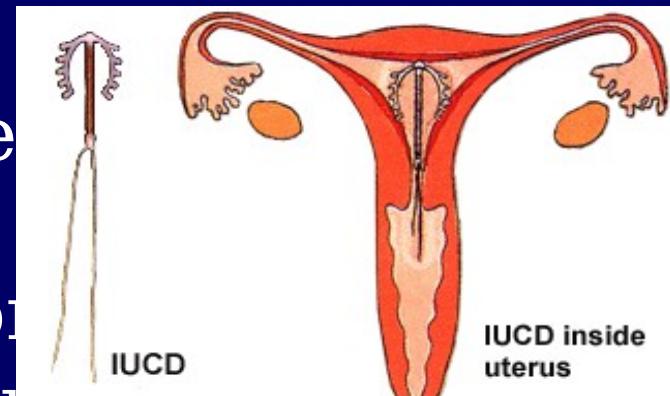
Dosage form: Cream, pessary, jell & foaming tablets

Mechanical methods

➤ as condom in males, vaginal diaphragm or cervical cap in females.



➤ Intrauterine device which is impregnated with barium to be radio-opaque. It acts by interfering with implantation or enhancing phagocytosis of ovum.



Mention:

- 1) Types of oral contraceptives.**
- 2) The most important adverse effects & contraindications of oral contraceptives**
- 3) The most important SERMs and their therapeutic uses**

SUGGESTED TEXTBOOKS



- 1.
2. Katzung BG, Trevor AJ. (2018). Basic & Clinical Pharmacology (14th edition) New York: McGraw-Hill Medical.



**THANK
YOU**